

Turkey Butte - Barney Pasture Forest Health Restoration Project

Coconino National Forest
Flagstaff Ranger District

Proposed Action

April 2012

PROJECT AREA

The Turkey Butte - Barney Pasture Forest Health Restoration project area is approximately 17,838 acres, and is located within all or portions of T18N, R5E, Sec. 1-4; T18N, R6E, Sec. 6; T19N, R4E, Sec. 1,2,12,13,24-26,35,36; T19N, R5E, Sec. 6-10, 14-36; T19N, R6E, Sec. 19,20,29-33; T20N, R4E, Sec. 35 and 36 on the Flagstaff Ranger District of the Coconino National Forest. The project area is generally bordered by the upper portion of the West Fork of Oak Creek, the Red Rock-Secret Mountain Wilderness, the Sycamore Canyon Wilderness, and Oak Creek Canyon Natural Area. Elevation ranges from around 6400 to 7400 feet (see Figure 1).

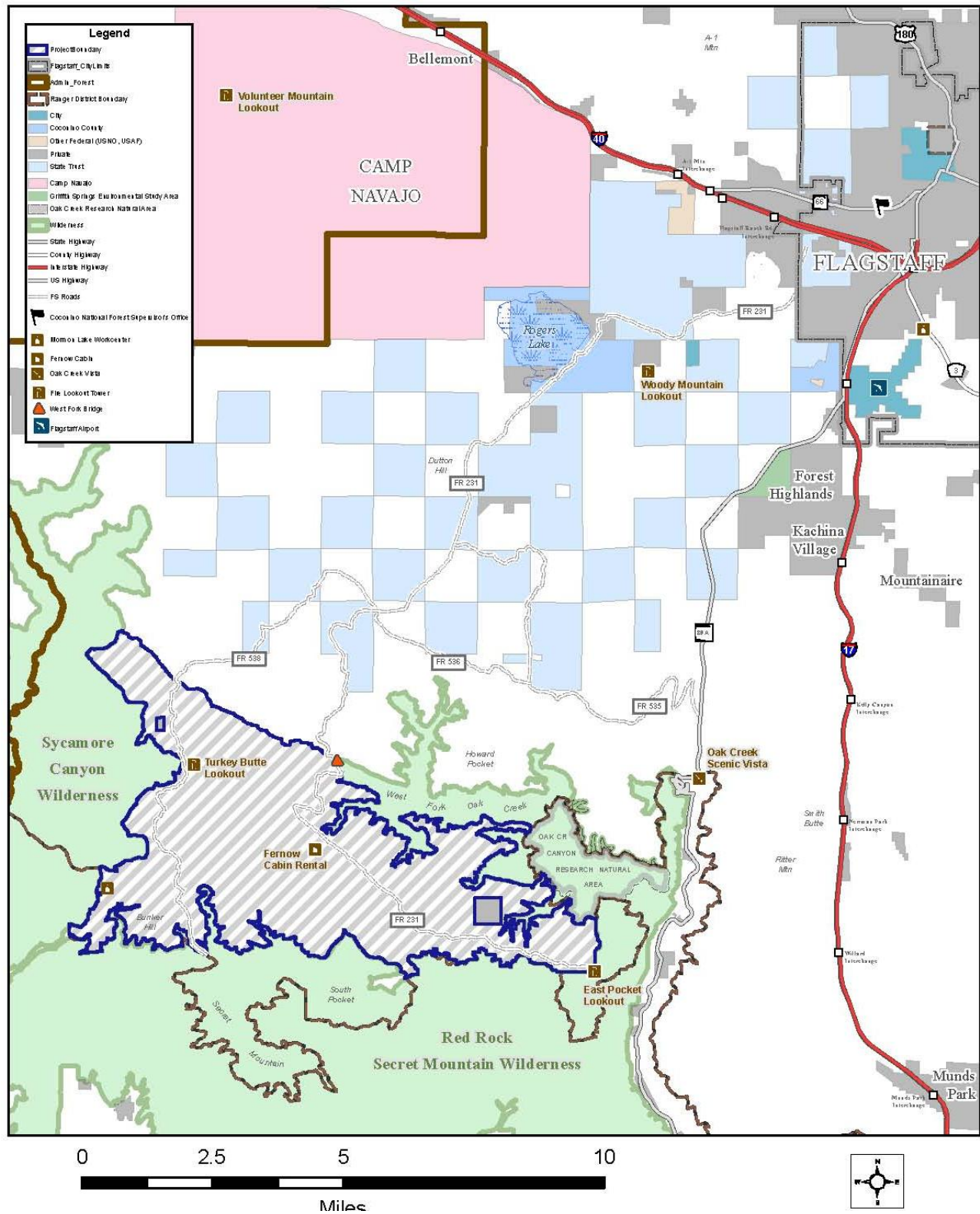
BACKGROUND

Years of fire suppression and exclusion have led to overcrowded forest conditions within and surrounding the project area. This overcrowding has caused increased competition for resources among trees and resulted in decreased tree health, growth, and vigor. As tree densities have increased over the past century, the level of dwarf mistletoe infection has also increased. Existing forest structure within the project area is significantly outside the historic range of variability for southwestern ponderosa pine forests; the structure consists of mostly even-aged stands of one to two age classes and lacks vertical and horizontal heterogeneity. Historically, southwestern ponderosa pine forests were uneven-aged, consisting of at least three or more age classes with a varied vertical structure. Additionally, tree arrangement presettlement consisted of visually distinct and strongly aggregated groups of 3-44 trees ranging in size from 0.05 – 0.7 acres in size (White 1985). More recent research by Meador (2010) showed that historically trees were arranged in smaller patches up to 0.4 acre in size, with 4 to 11 patches per acre. High tree density accompanied by tree damage and death resulting from a 2010 tornado event have increased the risk of bark beetle attack and infestation. In addition, approximately 74 percent of the project area contains some level of dwarf mistletoe infection, with light levels of infection in 29 percent, moderate levels in 32 percent, and heavy levels in 12 percent¹ of the project area.

Departure from historical forest and ecosystem *structure* has also paved the way for the departure from historical forest and ecosystem *function* within the project area. In the absence of the natural process of frequent, low intensity fire, excessive tree densities and high fuel load accumulations have developed, which in turn, has increased wildfire hazard within the project area. Conditions triggering extreme wildfire risk have also affected components of watershed health within the project area. Five watersheds that exist within the project area have been rated as “impaired function” or “functioning at risk” for an indicator of watershed condition. This indicator addressed the potential for altered hydrologic and sediment regimes because of departures from historical ranges of variability in vegetation, fuel composition, fire frequency, fire severity, and fire pattern. Restoring an uneven-aged forest structure while reducing tree densities within the project area would help restore forest health, create a more resilient and sustainable forest structure, support and maintain biological diversity (wildlife and herbaceous understory), restore watershed conditions and associated habitats, and reduce the threat of severe wildfire in and around the Turkey Butte - Barney Pasture project area.

¹ Dwarf mistletoe infection was considered “light” if less than 20% of the trees per acre were infected, “moderate” if 20-60% of the trees per acre were infected, and “heavy” if greater than 60% of the trees per acre were infected.

Figure 1: Turkey Butte – Barney Pasture Project Vicinity Map



Purpose and Need

The primary purpose of the Turkey Butte - Barney Pasture Project is to improve and restore forest and ecosystem health, structure, functioning, and resilience within the 17,838-acre project area. Additionally, there is a need to reduce the current high fire hazard and restore the historic function of fire in southwestern ponderosa pine forests to the project area in order to achieve and maintain desired forest and ecosystem conditions.

Need for Change

The divergence between current conditions and desired future conditions has indicated and further substantiates the following needs for change:

- There is a need to improve forest and watershed health by reestablishing a more sustainable, uneven-aged, and heterogeneous forest structure to increase species diversity and forest resiliency to insects and disease.
- There is a need to reduce the threat and negative effects of uncharacteristic wildfire behavior.
- There is a need to reduce current road densities to meet the goals and objectives outlined in the Travel Management Rule and the Coconino National Forest Plan (1987, as amended).

Proposed Action

To meet the project's purpose and need, the following activities are proposed (see Figure 2).

Ponderosa Pine Restoration – 9,263 acres

Treatments would utilize uneven-aged management group selection and different thinning methods through mechanized harvesting and hand-thinning on slopes less than 40% in ponderosa pine and mixed-conifer vegetation types. Prescribed burning (initial entry and maintenance) would occur on all acres.

Retention of old, presettlement trees (including ponderosa pine, Gambel oak, Arizona walnut, and alligator juniper) would be emphasized, with a focus on leaving trees in the least prevalent size class, generally greater than 18 inches dbh and less than 5 inches dbh. Within MSO restricted habitat, all trees \geq 24 inches dbh would be retained. In northern goshawk nest stands, treatment would consist of thinning from below to promote maintenance and development of VSS 5 and VSS 6 and reduce fire hazard. Treatment would focus on thinning smaller diameter trees generally less than 12 inches dbh, but may include trees up to 18 inches dbh, depending on the dominant size class. Residual basal areas would generally range from 70-140 ft² per acre.

In areas experiencing historical wildfire regeneration, treatment would consist of precommercial thinning of smaller diameter trees, generally less than 5 inches dbh, but may include trees up to 9 inches dbh, depending on the dominant size class.

Desired leave tree arrangement would be a mosaic pattern of individual trees and groups of trees, interspersed among openings and grassy interspaces. Tree groups would vary in shape, size, density, and number: generally from 0.01 – 0.7 acres in size with residual group basal areas of up to 120 ft² per acre. Spacing between leave tree groups would be variable and would generally range from 25 to 150 feet. Openings generally between 0.5 and 2 acres would be created in addition to the spacing between groups of leave trees (interspaces); however openings could be up to 4 acres.

Forest Health Restoration – 3,873 acres

This treatment area would include stands with moderate to severe dwarf mistletoe infection. Pile and prescribed burning (initial entry and maintenance) would occur on all acres. Prescribed burning would be timed to avoid damage to healthy regeneration.

Severely infected stands (280 acres): treatment would utilize even-aged management to promote natural regeneration of ponderosa pine and improve the health and sustainability of the stand. Treatment areas would be outside of MSO habitat and northern goshawk PFAs.

Treatment would include harvesting infected trees in two or more successive cuttings, thereby temporarily leaving a portion of the mid-aged trees to serve as a seed source and to protect regeneration. Initial entry seed tree cuts would generally result in residual basal areas ranging from 20 - 40 ft² per acre. Leave tree selection would favor the best seed-producing trees with the least amount of infection. After areas regenerate in approximately 10 -20 years, seed trees with dwarf mistletoe infection would be harvested to prevent infection of the newly regenerated understory trees.

Moderately infected stands (3,593 acres): Treatment would consist of thinning dwarf mistletoe-infected trees. Leave tree selection would favor old, presettlement ponderosa pines, trees greater than 24 inches dbh, and trees with little to no sign of infection. Basal areas would generally range from 40 – 80 ft² per acre. Leave tree arrangement would be somewhat groupy since dwarf mistletoe infection tends to occur in “pockets.”

Thinning to Reduce Wildfire Risk – 1,159 acres

Treatment would consist of thinning up to 18 inches dbh and prescribed burning on approximately 1,159 acres to reduce fire hazard in Mexican spotted owl (MSO) protected activity centers (PACs) and threshold habitat. Thinning would be accomplished using either mechanized equipment or through hand-thinning. Treatment would retain a multi-storied canopy where possible to prevent habitat structure modification. Treatment activities would occur outside of the MSO breeding season (March 1 to August 31) in occupied PACs, and treatments would be phased so that implementation would not occur within all PACs in the same year. No treatment would occur within MSO nest cores.

Tree cutting for Administrative Site Use – 8 acres

On 8 acres, trees that are blocking the view from Turkey Butte Lookout would be individually selected and cut by hand. Pile and prescribed burning (initial entry and maintenance) would occur on all acres.

Burn Only – 3076 acres

Prescribed fire (initial entry and maintenance) only; includes areas with steep slopes (> 40%), stands classified as juniper woodlands or grasslands, stands severely burned in the Taylor Fire (2009) to remove down debris, MSO threshold stands, and stands that currently have very low tree densities to restore natural fire processes.

No Treatment – 419 acres

No treatment would occur within 419 acres of sensitive wildlife habitat.

Tornado Salvage – 40 acres

Areas damaged by the tornados and identified in the Tornado EA as damage “core” areas would be treated according to Tornado EA decision. Areas adjacent to the tornado damage “core” areas (“buffer” areas) would be treated according to the decision associated with this EA.

Temporary Roads and Improvements

There is a large network of existing roads within the project area. These existing roads would be used to the extent possible for hauling harvested trees. Forest Roads (FR) 231 and 538 would be used as main haul routes.

It is possible that not all treatment blocks could be accessed by existing roads. As a result, a maximum of 2 miles of temporary roads may need to be constructed to assist with tree harvesting and hauling. The

precise location of temporary roads cannot be determined until a contract for the treatment is secured and the type of equipment to be used by the contractor is determined; however no temporary roads would be located in meadows or on sensitive soils. All temporary roads, landings and skid trails used would be pre-approved by the Forest Service Timber Sale Administrator in accordance with resource protection measures.

All temporary roads would be rehabilitated after harvesting has been completed, which may include lopping and scattering slash, ripping or other closure and rehabilitation methods (see list below). Applicable Coconino National Forest Management Plan direction, Best Management Practices (BMPs), Forest Service Manual and Handbook direction, as well as standard mitigation measures would be implemented.

Road Decommissioning and Closures

The project area contains approximately 71 miles of roads closed to motorized travel through the Travel Management Rule (TMR) decision (September 2011). Approximately 10 of the 71 miles of closed roads would be obliterated upon project completion. Approximately 11 miles of closed roads would be accessed for administrative use only by the Coconino National Forest. These roads would be closed by locked gates. The additional 50 miles would be decommissioned within the scope of a Timber Sale Contract or Stewardship Contract.

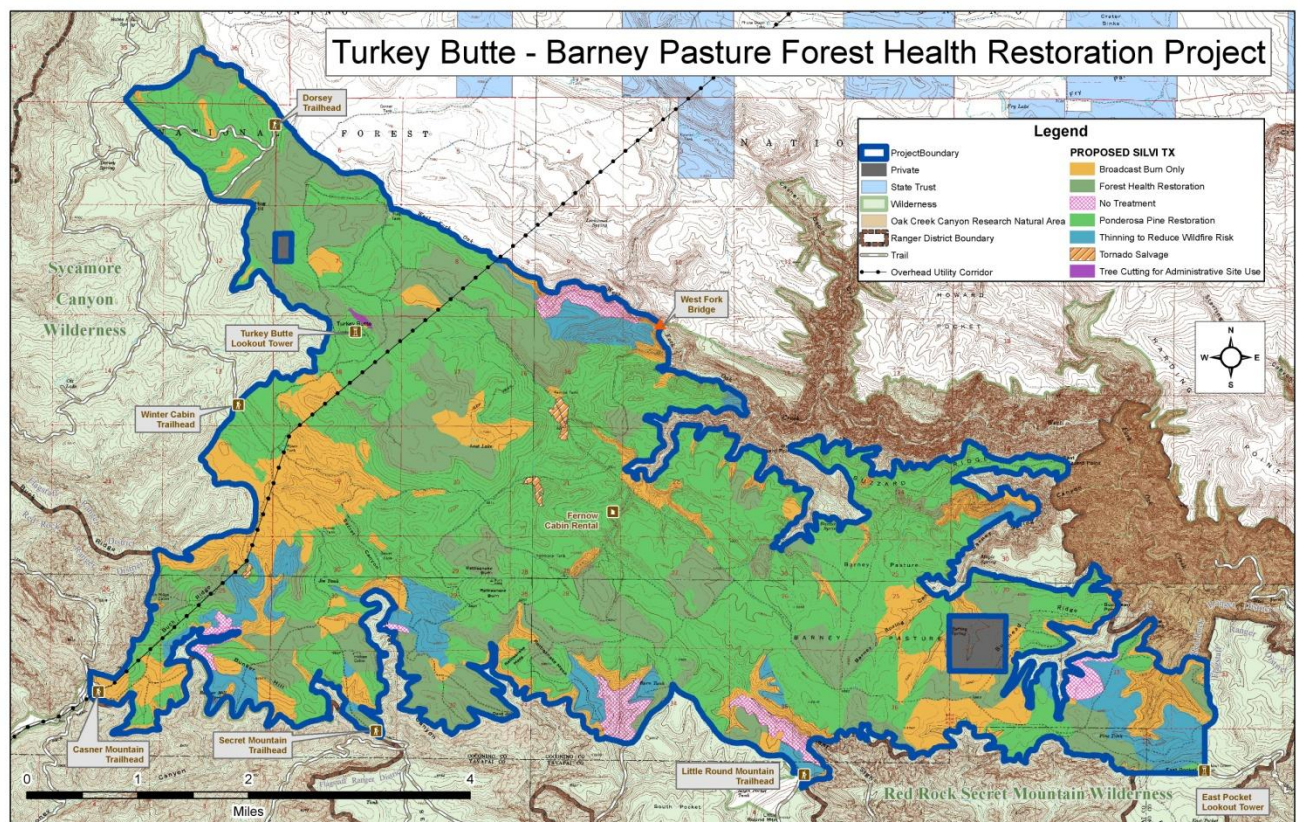
Obliteration would consist of any or all of the following:

- Rolling any significant windrows back into the road bed along its entire length
- Scarifying to a depth of 4 to 5 inches in the road bed along its entirety. This would be accomplished 45 degrees or less to the existing fall line or slope.
- Installing/maintaining adequate drainage structures (i.e. water bars, cross ripping, outsloping) with locations identified by FS.
- Scattering slash randomly along the road, heavily along the ripped portion.
- Re-contouring where applicable (cross-sloped).
- Seeding with native seed species the entire length.

Decommissioning would include:

- Removal of any posted road designators (road numbers, names)
- Changing the status in the FS database used to track roads
- Obliteration of the road bed to some degree

Figure 2: Proposed treatment areas



Definition of Treatment Terms

Groupy- Refers to the desired leave tree arrangement, i.e., groups of trees of varying size, shape, VSS, and density, separated by grassy interspaces and interspersed among regeneration openings. Groups may be even-aged or uneven-aged, depending on the existing forest structure. A groupy leave tree arrangement results in increased horizontal heterogeneity.

Presettlement- Prior to the disruption of the natural frequent fire regime and widespread Euro-American settlement of the area, generally accepted as the 1870s.

Northern Goshawk Foraging Habitat-Refers to all ponderosa pine stands outside of northern goshawk post fledgling areas (PFA) and outside of all Mexican spotted owl habitat.

Coconino National Forest Management Plan Amendments

Two non-significant Forest Plan amendments are anticipated for this proposed action:

- To allow thinning up to 18 inches dbh in Mexican spotted owl protected habitat (MSO PACs) to reduce wildfire risk. Currently the Forest Plan allows thinning up to 9 inches dbh within MSO PACs, which is not enough to provide actual fire-risk abatement. This amendment would be in line with the Draft MSO Recovery Plan (USDA Fish and Wildlife Service, 2011).
- Regarding canopy cover and interspaces: add clarifying language for measuring/evaluating canopy cover, add a definition of interspace, and add language that discloses the relationship between interspaces and openings to the vegetation structural stage. Currently the Forest Plan does not specify how to measure canopy cover, nor does it provide a clear definition of

interspaces or the relationship between managing interspaces and openings across the landscape. The amendment would add the following:

- Canopy cover would be measured at the group level.
- Openings would be defined as areas where trees, usually in the dominant age class, are removed to create a more sustainable, uneven-aged forest structure and to increase horizontal and vertical heterogeneity. Openings may also be placed in areas with insect or disease issues to improve forest health. Openings are also referred to as VSS 1 (grass/forb/shrub).
- Interspaces would be defined as the spaces between groups of trees (VSS 1-6) that are intended to be maintained as grassy areas with few to no trees through the use of prescribed fire.

Possible Alternatives

In addition to the Proposed Action, the No Action Alternative will be analyzed. No Action will consider the effects of not completing the proposed actions within the Turkey Butte/ Barney Pasture project area.

Based on significant issues identified during scoping, other alternatives may be developed. The full development and analysis of alternatives will be completed following public response to this scoping effort and will be addressed in the Environmental Assessment (EA).

Design Features

The proposed action is designed to comply with Forest Plan standards and guidelines, as amended. Design features would be incorporated into the project to protect forest resources of soil, water, scenery values, wildlife and aquatic habitat, and rare plants. Mitigation measures and best management practices would be implemented during the project to reduce impacts to wildlife, to protect heritage resources, to prevent the introduction and spread of invasive plants, and to protect public health and safety. See Appendix A for a list of design features associated with the proposed action.

Level of Environmental Analysis

The Proposed Action and any alternatives for the Turkey Butte/ Barney Pasture Forest Health Restoration project are anticipated to be analyzed in an Environmental Assessment (EA) as described in Forest Service Handbook 1909.15, Chapter 40. The EA will fully describe and evaluate the proposed action and alternatives for meeting the purpose and need.

Decision Framework

Because the proposed action includes timber harvest exceeding the delegated authority of the District Ranger, the Forest Supervisor is the responsible official for deciding whether or not, and in what manner, lands within the Turkey Butte/Barney Pasture project area would be treated to improve forest health and reduce wildfire hazard.

Items in this decision will include:

- number of acres treated mechanically
- number of acres treated by hand thinning
- number of acres treated with prescribed fire
- treatments within the MSO restricted habitat
- treatments within MSO PACs and protected habitat
- treatments within northern goshawk habitat
- construction of new temporary roads
- decommissioning/obliteration of closed roads

The decision will be based on a consideration of the environmental effects of implementing the proposed action or alternatives. The Forest Supervisor may select the proposed action, any alternative analyzed in detail, a modified proposed action or alternative, or no action.

Contact Person

To be most helpful in the planning process, please provide comments on the Proposed Action by May **X**, 2012. For more information on this project or to comment on the Proposed Action, contact Erin Phelps, Acting Environmental Coordinator for the Flagstaff Ranger District at (928)527-8240, via e-mail at ephelps@fs.fed.us, or via mail at 5075 N. Highway 89, Flagstaff, AZ 86004. Comments may also be hand delivered to the Flagstaff Ranger District Office at the above address between 8:30 a.m. and 4:30 p.m., Monday through Friday, excluding holidays.

Appendix A – Design Features

Specialist Area	Related Resource	Mitigation Measure
Silviculture	Old Trees	Old trees, as defined by Thomson, 1940, would not be targeted for cutting. However, exceptions may be necessary. An example of this would be to cut an old tree in order to accommodate the turning radius of a logging truck, rather than relocating an entire road. Another exception would be removing an old tree to address human health and safety concerns.
	Large Trees	Post-settlement ponderosa pine trees > 16 inches dbh may be removed to restore forest health and to emulate natural vegetation patterns based on current stand conditions, pre-settlement evidences, desired future conditions, or other restoration objectives. Instances where this would occur include: in heavily stocked stands of large, young trees when the presence of such trees would prevent the re-establishment of sufficient stand openings; in areas with dwarf mistletoe infection; to thin around Gambel oak and Arizona walnut; to thin around old, presettlement ponderosa pine; and to reestablish a groupy leave tree arrangement. Removing such trees would only occur when these actions do not conflict with existing recovery/conservation plan objectives for managing sensitive, threatened, or endangered species or their habitat. Within MSO restricted habitat, trees greater than 24 inches dbh would not be harvested.
	Prescribed burning	<ul style="list-style-type: none"> Seedlings and saplings (VSS 1 and 2 groups) would be protected as needed during both initial and maintenance burns. Mortality would be mitigated in burn plans. Slash piles would be of appropriate size and located in openings or other locations so that burning would not damage standing live trees, snags, downed logs, sensitive plants, or physical improvements such as fences, poles, signs, and cattle guards. Where possible, piles would be located on old pile sites or previously used decking areas, and would avoid advanced regeneration. Arizona walnut would be protected from fire-related mortality during both initial and maintenance broadcast burning.
	Shelterwood Treatment (per Forest Plan replacement page 130)	<ul style="list-style-type: none"> Preparatory cuts are done as needed to prepare the stand for regeneration, to improve wind firmness, crown development, or to enhance the seed bed. Prepare site during seed cut. Cut pine to approximately 30 GSL (growing stock level). Natural regeneration is planned during the regeneration period. If natural regeneration fails, areas may be planted as needed to achieve multiple resource objectives.

		<ul style="list-style-type: none"> • Precommercial thin as needed. • Use up to 4 intermediate cuts to improve health, growth, vigor, and spatial arrangement of stand. • Final removal is done when seedlings are established and certified. If final activities cannot be completed within the lifespan of this NEPA analysis (approximately 20 years), further review would be conducted prior to implementing these activities.
Heritage	Site Protection	All fire intolerant sites would be marked for avoidance from prescribed burning and all sites protected from ground disturbing activities.
	Monitoring	Archaeological site conditions should be monitored after project implementation to address potential looting and vandalism due to increased traffic and visibility resulting from the removal of ground cover currently concealing many sites from view.
Wildlife	Mexican Spotted Owl	<ul style="list-style-type: none"> • MSO surveys would be coordinated with the Fish and Wildlife Service the year of implementation or one year prior to determine occupancy of owls. • Treatments within PACs would be phased by PAC so that implementation would not occur within all PACS in the same year. • The Forest Service would monitor effects to MSO from the proposed action and report their findings to the FWS. Implementation monitoring shall include information such as when or if the project was implemented, whether the project was implemented as analyzed in the site specific BO (including conservation measures, and best management practices), breeding season(s) over which the project occurred, relevant MSO survey information, and any other pertinent information about the project's effects on the species. • No thinning, prescribed burning, temporary road construction, maintenance or obliteration would occur within occupied PACs during the breeding season (March 1 to August 31). • Coordinate burning spatially and temporally to limit smoke impacts to nesting owls, particularly for PACs with nests in draws & canyons (Effective March 1 to August 31).
	Northern Goshawk	<ul style="list-style-type: none"> • Harvest activities would not occur within a 1/4 mile of occupied nests (potentially adjusted by topography) during the breeding season (March 1 to September 30). If nest is not known no treatments would occur unless surveys indicate the PFA is unoccupied. • Prescribed burn plans in northern goshawk PFAs would be designed and implemented to minimize smoke impacts to nesting birds and minimize loss of nest trees.

	Other Wildlife	<ul style="list-style-type: none"> • No vegetation treatments would occur within a ½ mile (2,500 ft.), unless mitigated by topography, of an occupied golden eagle nest between March 1 and August 31 (there is 1 golden eagle nest within the analysis area). Other project activities would be assessed by the district biologist and limited activities may be acceptable. • Burn plans within 1/2 mile of the golden eagle nest site and peregrine falcon eyries would be coordinated with the district wildlife biologist to insure nesting eagles and falcons would not be adversely impacted from smoke. • Hiding cover would be maintained near dependable waters by not targeting drainages for interspaces and openings, and through implementation of watershed BMPs.
	Snags	<ul style="list-style-type: none"> • Protect snags and logs wherever possible through site prep, implementation planning, and ignition techniques to retain ≥ 2 snags per acre ≥12 inches dbh and ≥15 ft in height and ≥3 logs with ≥12 inches mid-point diameter and ≥ 8 ft in length. • Retain ≥ 2 trees per acre ≥18 inches dbh with dead tops, cavities, and lightning strikes wherever possible to provide cavity nesting/foraging habitat. • Emphasize retention of snags exhibiting loose bark to provide habitat for roosting bats.
Botany	Noxious/Invasive Weeds	<p>Best Management Practices as outlined in Appendix B of the “Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds” (USDA Forest Service 2005) would be followed to incorporate weed prevention and control into the project. The following features would be incorporated into project implementation and monitoring:</p> <ul style="list-style-type: none"> • Monitor slash pile sites after burning and control noxious or invasive weeds. • Off-road equipment moving from an area infested with invasive species would be cleaned of seeds, soil, and vegetative matter and other debris that could contain or hold seeds prior to entering treatment areas. • Manage prescribed fires as an aid for controlling existing weed infestations and to prevent the spread of existing weeds. • Survey temporary roads and roads to be closed or obliterated before work begins. Avoid existing noxious or invasive weeds during soil disturbing activities associated with obliteration.
	Sensitive Plants	<ul style="list-style-type: none"> • Survey area for Region 3 Sensitive plants before implementation. Identify and protect areas that contain

		<p>threatened, endangered, and sensitive species of plants and animals.</p> <ul style="list-style-type: none"> • Identify and protect the location of permanent monitoring plot for Flagstaff pennyroyal. • Follow the guidance of the Hedeoma diffusum Management Plan when working in habitat of Flagstaff pennyroyal. • Evaluate and mitigate loss of shade to Arizona bugbane (a Region 3 Sensitive plant) in the West Fork area prior to implementation. Minimize the loss of shade in canyon habitats where possible. • Prohibit slash pile construction within populations of Region 3 sensitive plants. • Construct slash piles at least 10 to 20 feet away from populations of sensitive plants. • Prohibit temporary road construction or reconstruction within populations of sensitive plants.
Soil/Watershed	BMP #1	On areas to be prescribed burned, fire prescriptions should be designed to minimize soil temperatures over the entire area. High intensity fire should occur on 10% or less of the entire area. Fire prescriptions should be designed so that soil and fuel moisture temperatures are such that fire intensity is minimized and soil health and productivity are maintained.
	BMP #2	In ponderosa pine-dominated areas outside of the ¼ mile buffers around private land inholdings to be prescribed burned, conduct burning to retain 5-7 tons/acre of coarse woody debris. Buffers around private land inholdings of ¼ mile do not have a minimum coarse woody debris requirement and should be treated to reduce fire behavior.
	BMP #3	On areas to be prescribed burned, establish filter strips averaging 1 chain (66 feet) buffer on each side of riparian streamcourses and an average of ½ chain (33 feet) buffer on each side of non-riparian streamcourses to filter sediments that would occur from the burn. Do not ignite fuels within this buffer area. Some creep may occur into the buffer.
	BMP #4	Rehabilitate containment lines used in prescribed fire activities by rolling back the soil berm formed during line construction, and installing waterbars as necessary to prevent concentration of runoff. Disguise the first 100 feet of containment lines to discourage use as a trail.
	BMP #5	All fueling of vehicles would be done on a designated upland site. If the total oil or oil products storage exceeds 1,320 gallons in containers of 55 gallons or greater, Purchaser shall prepare a Spill Prevention Control and Countermeasures Plan. Such plan shall meet applicable EPA requirements, including certification by a registered professional engineer

		as per 40 CFR 112.
	BMP #6	Designated skid trails and log landings would be required within the timber sale contract (TSC) and the skid trail pattern shall be approved by the Forest Service in advance of felling. Skid trail design shall not include long, straight segments which would concentrate runoff. Skid trails shall be located out of designated stream courses (exceptions are at approved crossings).
	BMP #7	Trees shall be felled, insofar as safety permits, to angle in the direction of skidding.
	BMP #8	Protection of streamcourses designated on the TSC Sale Area Map (SAM) shall include no operation of wheeled or tracked equipment in these streamcourses, and installation of culverts or bridges at temporary road crossings of these streamcourses,
	BMP #9	Drainage of roads, landings, and skid trails shall be controlled by a variety of methods including but not limited to insloping of the road bed toward an interior drainage ditch with periodic cross drains, outsloping of the road bed, crowning of the road bed, and construction of rolling dips and turn-outs. Slash shall be placed on temporary roads, skid trails, and landings after they have served their purpose unless visual observation indicates that methods of draining these areas are not sufficient to prevent erosion. In this case, a certified weed-free mix of Arizona fescue, western wheat grass, and squirrel tail shall be broadcast evenly at the rate of 5 pounds per acre after surface scarification.
	BMP #10	Equipment shall not be operated when ground conditions are such that excessive damage would result as visually monitored through such indicators as soil rutting.
Recreation	Public Awareness	<p>Inform forest visitors about restoration activities within the project area and make them aware of potential impacts when visiting this part of the forest. Provide information about restoration activities in the National Recreation Reservation System (NRRS) website which is used by forest visitors renting Fernow Cabin; and the CNF website.</p> <p>Issue news release(s) as appropriate when forest restoration activities are scheduled to occur and how it may affect forest visitation.</p> <p>Post notices and signs at key locations adjacent to and within the project area. This may include major FS roads accessing the area, kiosks at trailheads, bulletin boards, electronic sign boards, etc.</p>
	Fernow Cabin	Forest restoration activities within a close proximity (i.e. $\frac{1}{4}$ - $\frac{1}{2}$ mile) to Fernow Cabin may require the site to be closed to public use during operations. This would include timber

		cutting (noise from chainsaw use and/or mechanical cutting apparatus), timber extraction and hauling (noise from heavy equipment and trucks), and smoke impacts from prescribed fire activities.
	Fernow Cabin, Trails, and Trailhead(s)	Slash piles should be a reasonable distance from designated recreation sites and should not impede access to those sites. Also, if slash piles would be necessary they should be scattered, smaller in size, and burned in a practical time post-treatment.
	Trailhead(s)	Same as mitigation measure described for Fernow Cabin, unless a public notice is a more suitable tool (depending on the situation) in which case the trailhead may remain open to the public with appropriate warning/information.
	Forest System Trails	Harvesting activities would avoid forest system trails, if possible. If it is determined necessary that a trail must be used as a temporary road or skid trail, then the trail would be restored to FS standards post-treatment. It is acceptable to make perpendicular trail crossings. Trail crossing locations would be designated and flagged with input from the District Trails Coordinator or assigned personnel. Trail crossings would be restored to pre-project condition after use.
	Wilderness	<ul style="list-style-type: none"> • Improve the wilderness boundary signing where forest restoration operations are planned within close proximity (i.e. ¼ mi.) of a wilderness area. • Forest restoration treatments within close proximity (i.e. ¼ - ½ mile) to a wilderness area would consider “feathering” the treatment so the visual impacts are more transitional than abrupt.